ABSTRACT

*FastComp* is a computational tool for determination of the forces that a composite bolted joint subjected to multiaxial bearing supports until failure occurs. This software uses the classical lamination theory, allied to anisotropic plates fundamentals and to the superposition principle to determine the stress and strain distributions around the bolt hole of a fastened joint. For the determination of the failure mode and failure load, *FastComp* uses the *LaRC03 - Langley Research Center* criteria and *YAFC - Yet Another Failure Criteria*.

The main intention of the present Dissertation was the development of a graphical interface for the *FastComp* program that allows a pleasant and intuitive interaction with this computational tool, and the visualization of its results. Thus, a computational program based in linked technologies was developed to get an efficient, effective and of good performance interface: *VTK* – class library for graphical structures, visualization and image processing, developed under the principle of object orientation; *NET - Microsoft* platform for the development of applications; and *C#* - object oriented programming language developed by *Microsoft* for the *NET* platform.